

SEQUENCE LISTING

<110> Allen, Stephen M.
Rafalski, J. Antoni
Sakai, Hajime

<120> Nitrogen Transport Metabolism

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<151> 28 August 1998

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<211> 1037

<212> DNA

<213> Zea mays

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<212> PRT

<213> Zea mays

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Gln Leu His Gly Gly Cys Gly Ala Trp Gly Val Leu Phe Thr Gly Leu
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 Phe Ala Arg Arg Lys Tyr Val Glu Glu Ile Tyr Gly Ala Gly Arg Pro
 65 70 75 80
 Tyr Gly Leu Phe Met Gly Gly Gly Gly Lys Leu Leu Ala Ala Gln Ile
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 Ile Gln Ile Leu Val Ile Ala Gly Trp Val Ser Cys Thr Met Gly Pro
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 Leu Phe Tyr Ala Leu Lys Lys Leu Gly Leu Leu Arg Ile Ser Ala Asp
 115 120 125
 Asp Glu Met Ser Gly Met Asp Leu Thr Arg His Gly Gly Phe Ala Tyr
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 Val Tyr His Asp Glu Asp Pro Gly Asp Lys Ala Gly Val Gly Gly Phe
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 35 40 45
 Asn Thr Tyr Leu Leu Phe Ser Ala Tyr Leu Val Phe Ser Met Gln Leu
 50 55 60
 Gly Phe Ala Met Leu Cys Ala Gly Ser Val Arg Ala Lys Asn Thr Met
 65 70 75 80
 Asn Ile Met Leu Thr Asn Val Leu Asp Ala Ala Ala Gly Gly Leu Phe
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 Tyr Tyr Leu Phe Gly Phe Ala Phe Ala Phe Gly Ser Pro Ser Asn Gly
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 Tyr Leu Ile Tyr Ser Ser Phe Leu Thr Gly Phe Val Tyr Pro Val Val
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 Ser His Trp Phe Trp Ser Pro Asp Gly Trp Ala Ser Ala Phe Lys Ile
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 Thr Asp Arg Leu Phe Ser Thr Gly Val Ile Asp Phe Ala Gly Ser Gly
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 Glu Gly Pro Arg Met Gly Arg Phe Asp His Ala Gly Arg Ala Val Ala
 225 230 235 240
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Leu Thr Tyr Gly Asn Ser Gly Asn Tyr Tyr Gly Gln Trp Ser Ala Val
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Thr Thr Leu Phe Gly Lys Arg Val Ile Ser Gly His Trp Asn Val Thr
305 310 315 320

Asp Val Cys Asn Gly Leu Leu Gly Gly Phe Ala Ala Ile Thr Ala Gly
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Cys Ser Val Val Glu Pro Trp Ala Ala Ile Val Cys Gly Phe Val Ala
340 345 350

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<212> DNA
<213> Triticum aestivum

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<212> PRT
<213> Triticum aestivum

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Ala Met Gln Leu Gly Phe Ala Met Leu Cys Ala Gly Ser Val Arg Ala
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Lys Asn Thr Met Asn Ile Met Leu Thr Asn Val Leu Asp Ala Ala Ala
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Gly Ala Leu Phe Tyr Tyr Leu Phe Gly Phe Ala Phe Ala Phe Gly Thr
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Ala Ile Ala Ala Ala Gly Ile Thr Ser Gly Ser Ile Ala Glu Arg Thr
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 <212> DNA
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<212> DNA
<213> Oryza sativa

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<211> 497
<212> PRT
<213> Oryza sativa

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 Thr Ala His Tyr Gly Lys Asp Gly Ala Leu Glu Ser Pro Arg Thr Glu
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 145 150 155 160
 Ile Lys Ala Trp Met Ala Phe Thr Pro Leu Trp Leu Leu Phe Ser Tyr
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 Asp Arg Glu Arg Phe Ser Pro Asn Asn Ile Leu Leu Met Ile Ala Gly
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 305 310 315 320
 Ile Leu Met Gly Ile Cys Gly Gly Ser Leu Pro Trp Phe Ser Met Met
 325 330 335
 Ile Leu His Lys Arg Ser Ala Leu Leu Gln Lys Val Asp Asp Thr Leu
 340 345 350

Ala Val Phe His Thr His Ala Val Ala Gly Leu Leu Gly Gly Phe Leu
355 360 365

Thr Gly Leu Phe Ala Leu Pro Asp Leu Thr Ala Val His Thr His Ile
370 375 380

Pro Gly Ala Arg Gly Ala Phe Tyr Gly Gly Gly Ile Ala Gln Val Gly
385 390 395 400

Lys Gln Ile Ala Gly Ala Leu Phe Val Val Val Trp Asn Val Val Ala
405 410 415

Thr Thr Val Ile Leu Leu Gly Val Gly Leu Val Val Pro Leu Arg Met
420 425 430

Pro Asp Glu Gln Leu Lys Ile Gly Asp Asp Ala Ala His Gly Glu Glu
435 440 445

Ala Tyr Ala Leu Trp Gly Asp Gly Glu Arg Phe Asp Val Thr Arg His
450 455 460

Glu Gly Ala Arg Gly Gly Ala Trp Gly Ala Ala Val Val Asp Glu Ala
465 470 475 480

Met Asp His Arg Leu Ala Gly Met Gly Ala Arg Gly Val Thr Ile Gln
485 490 495

Leu

<210> 11
<211> 1961
<212> DNA
<213> Glycine max

<400> 11
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gttggtcatc agtggcacat acatatacag catcacaatt ctttgaaggg tgaaaaagct 180
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gcagaaccag ccctttgtag acttctattg ccagtaacaa attcaagggg tgcatcttat 1380

ggtggaggtg gttggtgca gttcttcaag caattggtgg cggccatgtt tgttattgga 1440
 tggaacttgg tgtccaccac cattattctc cttgtcataa aattgttcat acccttgagg 1500
 atgccgggacg agcagctgga aatcggtgac gacgccgtcc acggtgagga agcttatgcc 1560
 ctttggggtg atggagaaaa atatgaccca actaggcatg gttccttgca aagtggcaac 1620
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 gatgaatccg tgagtggat aagtagatat ttgattttgt catgaaagaa aatttccaaa 1800
 ttttgagatc tgatgttcct ctggtcatct tgcattcgaa gacctggtca tatatttctg 1860
 gcacagaatg tcttggcatg tgtataaaat ttagatttgt caaattttta aggaacttat 1920
 gattagtttt tttcacttag aagaaaaaaa aaaaaaaaaa a 1961

<210> 12
 <211> 486
 <212> PRT
 <213> Glycine max

<400> 12

Met Ala Thr Pro Leu Ala Tyr Gln Glu His Leu Pro Ala Ala Pro Glu
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Trp Leu Asn Lys Gly Asp Asn Ala Trp Gln Leu Thr Ala Ala Thr Leu
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Val Gly Leu Gln Ser Met Pro Gly Leu Val Ile Leu Tyr Ala Ser Ile
35 40 45

Val Lys Lys Lys Trp Ala Val Asn Ser Ala Phe Met Ala Leu Tyr Ala
50 55 60

Phe Ala Ala Val Leu Ile Cys Trp Val Leu Val Cys Tyr Arg Met Ala
65 70 75 80

Phe Gly Glu Glu Leu Phe Pro Phe Trp Gly Lys Gly Ala Pro Ala Leu
85 90 95

Gly Gln Lys Phe Leu Thr Lys Arg Ala Ile Val Ile Glu Thr Ile His
100 105 110

His Phe Asp Asn Gly Thr Val Glu Ser Pro Pro Glu Glu Pro Phe Tyr
115 120 125

Pro Met Ala Ser Leu Val Tyr Phe Gln Phe Thr Phe Ala Ala Ile Thr
130 135 140

Leu Ile Leu Leu Ala Gly Ser Val Leu Gly Arg Met Asn Ile Lys Ala
145 150 155 160

Trp Met Ala Phe Val Pro Leu Trp Leu Ile Phe Ser Tyr Thr Val Gly
165 170 175

Ala Phe Ser Leu Trp Gly Gly Gly Phe Leu Tyr Gln Trp Gly Val Ile
180 185 190

Asp Tyr Ser Gly Gly Tyr Val Ile His Leu Ser Ser Gly Ile Ala Gly
195 200 205

Phe Thr Ala Ala Tyr Trp Val Gly Pro Arg Leu Lys Ser Asp Arg Glu
210 215 220

Arg	Phe	Pro	Pro	Asn	Asn	Val	Leu	Leu	Met	Leu	Ala	Gly	Ala	Gly	Leu	225	230	235	240
Leu	Trp	Met	Gly	Trp	Ser	Gly	Phe	Asn	Gly	Gly	Ala	Pro	Tyr	Ala	Ala	245	250	255	
Asn	Ile	Ala	Ser	Ser	Ile	Ala	Val	Leu	Asn	Thr	Asn	Ile	Cys	Ala	Ala	260	265	270	
Thr	Ser	Leu	Leu	Val	Trp	Thr	Thr	Leu	Asp	Val	Ile	Phe	Phe	Gly	Lys	275	280	285	
Pro	Ser	Val	Ile	Gly	Ala	Val	Gln	Gly	Met	Met	Thr	Gly	Leu	Val	Cys	290	295	300	
Ile	Thr	Pro	Gly	Ala	Gly	Leu	Val	Gln	Ser	Trp	Ala	Ala	Ile	Val	Met	305	310	315	320
Gly	Ile	Leu	Ser	Gly	Ser	Ile	Pro	Trp	Val	Thr	Met	Met	Ile	Leu	His	325	330	335	
Lys	Lys	Ser	Thr	Leu	Leu	Gln	Lys	Val	Asp	Asp	Thr	Leu	Gly	Val	Phe	340	345	350	
His	Thr	His	Ala	Val	Ala	Gly	Leu	Leu	Gly	Gly	Leu	Leu	Thr	Gly	Leu	355	360	365	
Leu	Ala	Glu	Pro	Ala	Leu	Cys	Arg	Leu	Leu	Leu	Pro	Val	Thr	Asn	Ser	370	375	380	
Arg	Gly	Ala	Phe	Tyr	Gly	Gly	Gly	Gly	Gly	Val	Gln	Phe	Phe	Lys	Gln	385	390	395	400
Leu	Val	Ala	Ala	Met	Phe	Val	Ile	Gly	Trp	Asn	Leu	Val	Ser	Thr	Thr	405	410	415	
Ile	Ile	Leu	Leu	Val	Ile	Lys	Leu	Phe	Ile	Pro	Leu	Arg	Met	Pro	Asp	420	425	430	
Glu	Gln	Leu	Glu	Ile	Gly	Asp	Asp	Ala	Val	His	Gly	Glu	Glu	Ala	Tyr	435	440	445	
Ala	Leu	Trp	Gly	Asp	Gly	Glu	Lys	Tyr	Asp	Pro	Thr	Arg	His	Gly	Ser	450	455	460	
Leu	Gln	Ser	Gly	Asn	Thr	Thr	Val	Ser	Pro	Tyr	Val	Asn	Gly	Ala	Arg	465	470	475	480
Gly	Val	Thr	Ile	Asn	Leu											485			

<210> 13
 <211> 1656
 <212> DNA
 <213> Triticum aestivum

<400> 13
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 acacgtcggc ggcggtggcc gactggctga acaaggcgca caacgcgtgg cagctgacgg 180

Thr Leu Ile Leu Val Ala Gly Ser Leu Leu Gly Arg Met Ser Phe Leu
 145 150 155 160
 Ala Trp Met Leu Phe Val Pro Leu Trp Leu Thr Phe Ser Tyr Thr Val
 165 170 175
 Gly Ala Phe Ser Val Trp Gly Gly Gly Phe Leu Phe His Trp Gly Val
 180 185 190
 Ile Asp Tyr Cys Gly Gly Tyr Val Ile His Ile Pro Ala Gly Val Ala
 195 200 205
 Gly Phe Thr Ala Ala Tyr Trp Val Gly Pro Arg Thr Lys Lys Asp Arg
 210 215 220
 Glu Ser Phe Pro Pro Asn Asn Ile Leu Phe Ala Leu Thr Gly Ala Gly
 225 230 235 240
 Leu Leu Trp Met Gly Trp Ala Gly Phe Asn Gly Gly Gly Pro Tyr Ala
 245 250 255
 Ala Asn Val Asp Ser Ser Met Ala Ile Leu Asn Thr Asn Ile Cys Thr
 260 265 270
 Ala Ala Ser Leu Ile Val Trp Thr Cys Leu Asp Ala Val Phe Phe Lys
 275 280 285
 Lys Pro Ser Val Val Gly Ala Val Gln Ala Val Ile Thr Gly Leu Val
 290 295 300
 Cys Ile Thr Pro Gly Ala Gly Val Val Gln Gly Trp Ala Ala Leu Val
 305 310 315 320
 Met Gly Val Leu Ala Gly Ser Val Pro Trp Tyr Thr Met Met Val Leu
 325 330 335
 His Lys Arg Ser Lys Leu Leu Gln Arg Val Asp Asp Thr Leu Gly Val
 340 345 350
 Ile His Thr His Gly Val Ala Gly Leu Leu Gly Gly Val Leu Thr Gly
 355 360 365
 Leu Phe Ala Glu Pro Asn Leu Cys Asn Leu Phe Leu Pro Val Thr Asn
 370 375 380
 Ser Arg Gly Ala Phe Tyr Gly Gly Asn Gly Gly Ala Gln Leu Gly Lys
 385 390 395 400
 Gln Ile Ala Gly Ala Leu Phe Val Ile Gly Trp Asn Val Val Val Thr
 405 410 415
 Ser Ile Ile Cys Val Val Ile Arg Leu Val Val Pro Leu Arg Met Ser
 420 425 430
 Glu Glu Lys Leu Ala Ile Gly Asp Asp Ala Val His Gly Glu Glu Ala
 435 440 445
 Tyr Ala Leu Trp Gly Asp Gly Glu His Tyr Asp Asp Thr Lys His Gly
 450 455 460

Ala Ala Val. Val Pfo Val
465 470

40033409 40033409